

U.S. Fish & Wildlife Service

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September 2008



Blackwater

National Wildlife *Refuge*

Wildlife Drive



Wildlife Drive
USFWS

Take a Drive on the Wild Side!

Blackwater National Wildlife Refuge welcomes you to tour our popular Wildlife Drive that can be accessed by automobile, bicycle or on foot. Walking and biking on the drive is permitted, however, visitors must remain on the paved road. While on the refuge, please obey all signs, and do not feed or harass the wildlife. The Wildlife Drive is open daily from dawn until dusk.

This guide points out some of Blackwater's wildlife management programs. It is keyed to numbered observation points along the drive.

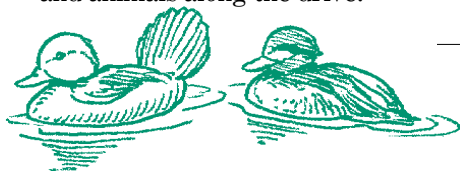
National wildlife refuges provide protection, food and cover for wildlife through specific land and water management programs. Although this refuge is managed primarily for migratory birds and endangered species, many other types of wildlife share the wide diversity of habitats. The careful observer will see a variety of plants and animals along the drive.



1. Moist Soil Vegetation

Freshwater habitat is scarce on Blackwater National Wildlife Refuge because of the predominantly brackish (mixture of salt and fresh water) conditions in the vicinity. The dike on which you are riding was constructed to create the freshwater impoundment to your right, which adds to the diversity of habitat for wildlife.

Scan the shallow edges for dabbling ducks such as mallards and Northern pintails; wading birds such as great blue herons and great



egrets; and shorebirds like yellowlegs and dunlins. The impoundments are drained in summer to encourage the germination of natural moist soil vegetation such as wild millet, smartweed and redroot cyperus which provide food for waterfowl. The drained mudflats also provide good feeding areas for shorebirds and other marsh and water birds.

In the late summer, the water control structures are closed to allow rainfall to fill them, making the seeds and tubers of these plants and a variety of invertebrates, such as snails, worms, and larvae, available to the migratory waterfowl.

The water to your left is part of the Little Blackwater River. The river is named for its dark color from tannic acids picked up as it drains through peat soil in the marshes.

Marsh Edge Trail

At this point, if you would like to visit the Observation Point and the Marsh Edge Trail, take the road to the left. To rejoin the Wildlife Drive, double back and continue from this point. A self-guiding leaflet for interpreting the Marsh Edge Trail is available at the trail head.

2. Bluebird Box



On your left is a bluebird nest box. These boxes have been erected to help improve bluebird reproduction. Bluebird nesting sites have decreased due to lack of natural nesting cavities. Nesting boxes are installed in suitable habitat to allow the species to nest. Other birds such as tree swallows, chickadees, titmice and wrens may also use the boxes. Bluebirds, as well as other species, consume large quantities of insects, especially mosquitoes. As many as 140 bluebirds have fledged in one year from the refuge's boxes.

3. Wood Duck Box



A few duck species use hollow trees for nesting. At Blackwater, the only cavity nesting duck is the wood duck. Timbering and land clearing for agriculture and development have eliminated many of the mature forests that historically provided an abundance of trees with natural cavities. These nesting boxes are used to replace disappearing natural sites. When not occupied by wood ducks, the boxes may have flickers, sparrowhawks and screech owls as tenants. Notice the cone shape

structures below the boxes. This is called a “predator guard”, which helps keep out nest predators such as raccoons and snakes.

4. Prothonotary Warbler Box

Prothonotary warblers are one of the two cavity nesting warblers in the United States. Most warblers build their nests in small trees, shrubs or on the ground. The small, yellow prothonotary warbler prefers natural cavities (decaying snags) located over water in swampy lowland forest of river bottom woodlands. Humans have reduced and altered the natural habitats making nesting sites increasingly difficult to find. Since these warblers do not excavate their own holes, they compete with other cavity nesters like Downy woodpeckers, Carolina chickadee, and Carolina wrens for nest sites.

5. Delmarva Peninsula Fox Squirrel



This woodland is managed to provide habitat for the endangered Delmarva Peninsula fox squirrel, which prefers a mature forest with little undergrowth. At one time these large squirrels lived in areas from southeastern Pennsylvania to Virginia, but natural populations are now found in only a few locations on Maryland’s Eastern Shore. They have become endangered primarily due to the loss of forests to agriculture and development for human use. The refuge provides

habitat and protection to the largest remaining natural population of Delmarva Peninsula fox squirrels in the world. The fox squirrel has a light, steel-gray coat and a large fluffy silvery tail with black edges. The gray squirrel, which also inhabits the refuge, is smaller and has reddish or brown hair mixed in its gray coat. The fox squirrel feeds more on the ground than the gray squirrel and can be seen venturing further into fields to feed on agricultural products.

Woods Trail

You will pass a parking lot on your right for one of the refuge’s walking trails, the Woods Trail. In spring, these wet woods are alive with the calls of mating tree frogs and toads and numerous songbirds. The Woods Trail allows you to trek through Delmarva Peninsula fox squirrel habitat and observe this endangered species. If you choose to hike the one-half mile trail, you may want to apply insect repellent as biting insects are abundant from mid-April through late September.

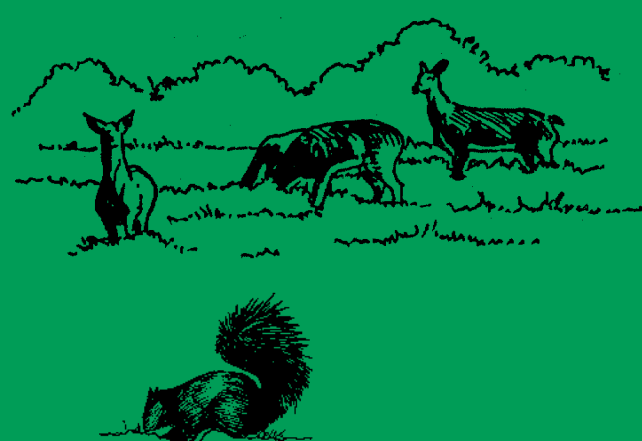
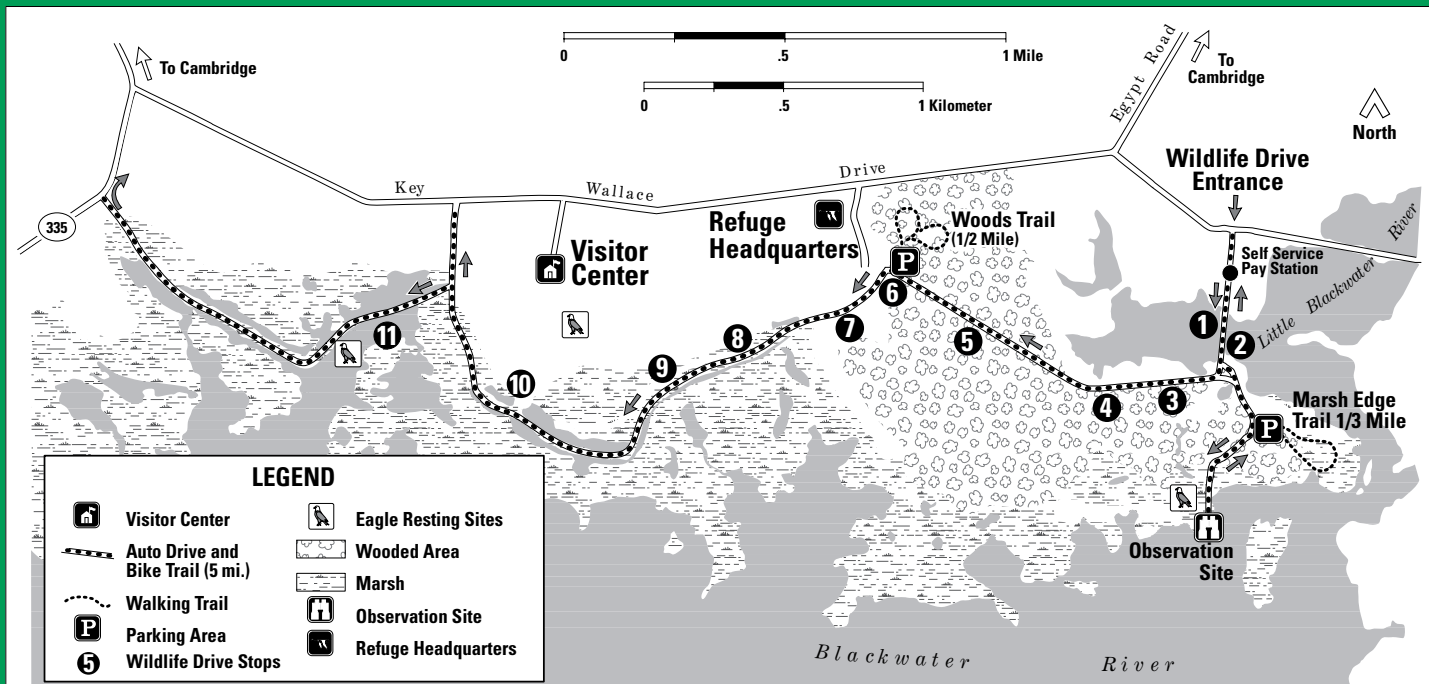
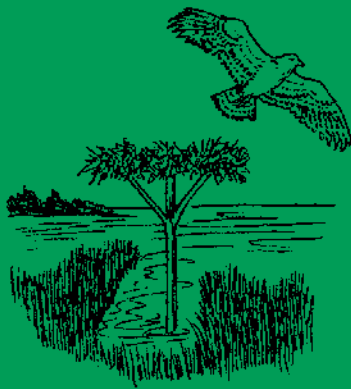


6. Deer

An important part of the wildlife management program at Blackwater is to retain diverse agricultural fields. More than 500 acres of croplands are planted with millet, sorghum (milo), corn, buckwheat, clover, soybeans or rye grass to provide high energy food and cover for many species of wintering waterfowl and other wildlife. White-tailed deer may be seen feeding in these fields, especially in the early morning or evening. They prefer the “edge”

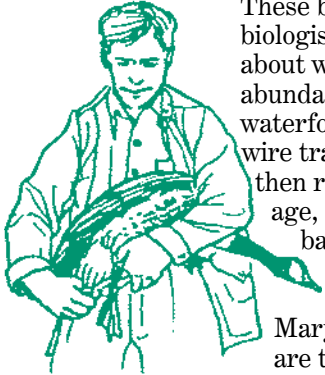
Blackwater

National Wildlife Refuge



habitat where forests, meadows and croplands come together. In addition to white-tailed deer, smaller, white-rumped sika (pronounced “see-kuh”) deer, an Asian species of elk introduced to James Island in 1916, have also been observed at Blackwater. Abundant in the marshy areas, sika deer are grazers that feed on the marsh grasses, while white-tailed deer are primarily browsers that feed on the leaves, buds and twigs in forested areas. Both species use agricultural crops.

7. Waterfowl



As you drive through the refuge, you may notice waterfowl with aluminum leg bands, or, more rarely, numbered neck collars. These bands are tools that help biologists obtain information about waterfowl movement and abundance in different areas. The waterfowl are captured in nets or wire traps, identified, banded and then released. Each bird's species, age, sex, and date and place of banding are recorded by the refuge staff and forwarded to a laboratory in Laurel, Maryland. Recovered bands are turned in by hunters, or are reported by other banding stations when these birds are recaptured. Information on migration and other aspects of their life history are valuable in managing for waterfowl. Species of waterfowl using Blackwater include Canada and snow geese, tundra (whistling) swans, and more than 20 species of ducks.

8. Fresh and Brackish Water Marshes

From here you can see typical habitat used by waterfowl, marsh birds and muskrats. The dike you are on separates the freshwater impoundments on your right from the tidal, brackish marsh and Blackwater River on your left. The impoundments are drained in the summer to allow growth of moist soil plants, and in some

impoundments, the planting of crops such as Japanese millet or milo. The impoundments are then flooded in the fall mainly through rainfall. The water levels are carefully controlled so that the impoundments provide abundant high energy and protein foods as well as resting sites for the waterfowl and other migratory birds that depend on the refuge from fall to spring.



In the late winter, prescribed burns are done in the marsh to remove dead vegetation. This helps to promote new, vigorous spring growth of the Olney three-square (*Scirpus americanus*) and other marsh vegetation that is eaten by waterfowl and muskrats. These carefully planned burns also prevent the buildup of dried vegetation that can cause extremely hazardous and volatile conditions that fuel wildfires.

During the summer, egrets, herons and other water birds feed on fish and crustaceans of the brackish marsh. They also eat frogs and snakes found in the fresh waters of the impoundments. Turtles are often seen sunning themselves on the logs. Approximately 45 species of reptiles and amphibians are found on the refuge.

9. Muskrat and Nutria

Muskrats, sometimes observed swimming in the water, not only feed on the marsh vegetation, but also use it to build dome shaped homes called lodges. These can readily be seen after prescribed burning of the marsh, but are hard to find in the summer when the marsh vegetation grows higher than the lodges. The large rodents reproduce very rapidly.

The young are considered adults in approximately two months. Trapping by permit is used to control the muskrat population and prevent damage to marsh vegetation from overgrazing.

The nutria, a much larger South American rodent, was introduced in this area in the 1940s for their fur. Nutria burrow into the marsh to feed on the roots of marsh plants. They reproduce more rapidly than the muskrat, do not have any natural predators, and there is little demand for their fur. Nutria are partially responsible for the loss of thousands of acres of wetlands over the past several decades. An effort to remove nutria from the area was started in 2002, and today they are rarely seen on the refuge.

Ahead on your left you will notice sections of marsh outlined with stakes and fencing. These are experimental marsh restoration plots that were planted in 2003 to test the feasibility of rebuilding some of the marsh that has been lost to the nutria. A larger marsh restoration project is planned for the future.

10. Osprey

The nesting platform to your right helps to compensate for the scarcity of suitable tall trees near the water on which osprey would normally build their nests. The shallow waters of the Blackwater River provide excellent fishing habitat for this “fish hawk.”

Osprey populations declined in the mid-1900s as a result of pesticide use and increased human activity. The pesticide, DDT, which caused the eggs that were laid by these birds to be too thin and soft to hatch, was banned in the United States in 1972. This legislation and various management techniques have helped



11. Bald Eagle

raise the population of the osprey, as well as other raptors such as the bald eagle and the peregrine falcon.

The dead tree “snags” to your left are a favorite resting spot for the bald eagle, as well as hawks, vultures, herons and egrets. Bald eagles prefer the tall loblolly pines isolated near the water for nesting and roosting. Areas on Blackwater National Wildlife Refuge where eagles nest are protected from human disturbance to prevent nest abandonment. The area in and around the refuge boasts the largest concentration of nesting eagles on the east coast outside of Florida. The eagle population increases during the winter when migrant eagles visit the area.

U.S. Fish and Wildlife Service

Blackwater is one of nearly 550 refuges in the National Wildlife Refuge System administered by the U.S. Fish and Wildlife Service. The National Wildlife Refuge System is a network of lands and waters managed specifically for the protection of wildlife and wildlife habitat and represents the most comprehensive wildlife management program in the world. Units of the system stretch across the United States from northern Alaska to the Florida Keys and include small islands in the Caribbean and South Pacific. The character of refuges is as diverse as the nation itself. The Service also manages National Fish Hatcheries and provides Federal leadership in habitat protection, fish and wildlife research, technical assistance and the conservation and protection of migratory birds, certain marine mammals, and threatened and endangered species.

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